Remarks

Claims 1 to 14 are currently pending. The rejections to claims 1, 5, 6, 11, and 14 as outlined in the Office Action of September 30, 2002 are addressed below. Applicant acknowledges with appreciation the Examiner's statement that claims 2-4, 7-10, and 12-13 are allowable if re-written in independent form and including the limitations of the base claim and all intervening claims.

Claims 1, 5, 6, 11, and 14 have been rejected under 35 U.S.C. §102(b) as being anticipated by Soichiro Kawakami (JP61037969). The Examiner contends that Soichiro discloses all of the claimed elements of the rejected claims. Applicant traverses this rejection, noting that the Examiner has failed to establish a valid *prima facie* case for anticipation. As indicated at MPEP §2131, a reference can only serve as valid 35 U.S.C. §102(b) prior art if it teaches each and every element of the claimed invention, either expressly or inherently. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987).

Soichiro teaches a cathode 1 comprising a supply pipe 5 that supplies gas to the inside of a set of nested partition walls 2, 3. An English translation of the Soichiro reference has been prepared. A copy of the translation is enclosed herewith for the Examiner's convenience. As shown in Figure 1 and described in the English translation of the Soichiro reference, at for instance the last paragraph on page 7, gas is supplied to the inside of buffer 20 via pipe 5. Buffers 19 and 18 are supplied with gas only via outflow from the ports 15 and 14 in partition walls 3 and 2, respectively. No teaching or suggestion, either express or inherent, is provided in the cited reference to indicate that gas flow may occur into the buffers 18, 19, and 20 other than directly or indirectly via pipe 5. Applicant further respectfully submits that the Examiner's characterization of structural aspects of Soichiro are in error. Specifically, the Examiner has alleged that item 4 in Soichiro is "a gas flow divider." Soichiro labels item 4 as a "supporting plate." As is clear form both Figure 1 and the description in the first paragraph on page 7 of the English translation, this plate is solid except where it is penetrated by pipe 5 and is thus not in any way indicative or suggestive of a gas divider. Additionally, item 61, which the Examiner asserts may be labeled as a "single gas supply port" is designated as an "annular strut" by Soichiro. The annular strut as described in the enclosed English translation on page 7, first paragraph does not carry gas but rather provides structural support for the cathode assembly such

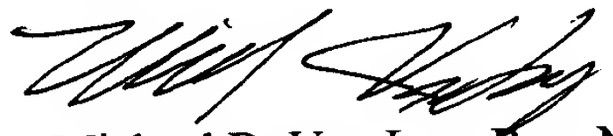
that it is electrically isolated from the chamber wall 6 and provides a space through which the electroconductive member 10 passes for supply current to the cathode. Gas flows through the annular strut 61 only via pipe 5 as discussed above. The apparatus shown in Figure 5 of Soichiro and described on pages 8 and 9 shows similar features for a cathode apparatus configured to expel gas axially rather than radially.

Claims 1 and 11 of the present application include the express limitation that gas is supplied to the gas delivery metering tube via two flow paths, one that flows into the inner tube and one that flows into the annular space between the inner and outer tubes. This structure is completely incompatible with the teachings of Soichiro. The supporting plate 4 of Soichiro is clearly not a gas flow divider as claimed in claims 1 and 11. Additionally, Soichiro does not provide for flow paths into both the inner tube and the outer tube of the apparatus, nor does it provide any teaching or suggestion that would lead one of ordinary skill in the art to modify the apparatus described therein to produce the instantly claimed invention. As such, Applicant respectfully submits that claims 1 and 11 are in condition for allowance. Because claims 5 and 6 depend upon independent claim 1 and claim 14 depends upon independent claim 11, they are also allowable as originally submitted.

A search report dated October 17, 2002 and references cited therein were recently received from the European Patent Office in a corresponding application. The search report is concurrently filed herewith in a Supplementary Information Disclosure Statement. Four references are disclosed: U.S. Patent Nos. 4,854,266 to Simson et al. and 6,146,461 to Yang et al., European Patent No. 1,054,076 assigned to Silicon Valley Group, and PCT published application WO9904059 assigned to Watkins Johnson Co. The search report designated all of the references except Simson et al as "A" documents or as "technological background" and not particularly relevant to the present invention. Copies of the all four references are enclosed herewith for the Examiner's reference. Applicant contends that the present application as claimed is patentable over all of the cited references. Simson et al discloses a cross-flow diffusion furnace in which gas is injected into an inner cylinder from which it flows into an outer cylinder. However, Simson does not disclose a means of supplying gas flow into both the inner and outer cylinders. Additionally, the diffusion tube 12 that forms the outer cylinder of the Simson et al system is solid. Gas is extracted from the diffusion tube 12 via a vacuum port 50 at the end of the cylinder through plate 48.

In view of the foregoing, it is respectfully submitted that this application is now in condition for allowance, and favorable action is requested. If any matters can be resolved by telephone, the Examiner is invited to call the undersigned agent at the telephone number listed below. The Commissioner is hereby authorized to charge any other fees determined to be due to Deposit Account 50-2319 (Order No. A-67178-1/MSS/MDV).

Respectfully submitted,



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